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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/972,489	10/05/2001	Keith Slavin	108298505US	5181
25096	7590	10/20/2004	EXAMINER	
PERKINS COIE LLP PATENT-SEA P.O. BOX 1247 SEATTLE, WA 98111-1247			PATEL, KANJIBHAI B	
			ART UNIT	PAPER NUMBER
			2625	5

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/972,489

Applicant(s)

SLAVIN, KEITH

Examiner

Kanji Patel

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 26-31 is/are allowed.
- 6) ☒ Claim(s) 10-13, 18, 23-25 abd 32-35 is/are rejected.
- 7) ☒ Claim(s) 14-17, 19-22, 36-39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. Drawings filed on 2/8/02 have been approved by the examiner.

### *Claim Objections*

2. Claim 21 is objected to because of the following informalities:

Claim 21, line 2, change "multipl" to --multiple--.

Appropriate correction is required.

### *Specification*

The disclosure is objected to because of the following informalities:

Page 5, line 26, change "lime" to --line--.

"SUMMARY OF THE INVENTION" (heading is missing).

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claim 10-13, 18, 23-25 and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Leung (US 5,696,708).**

**For claims 10 and 32,** Leung discloses a method of resizing an electronic image, wherein the electronic image includes image data in n dimensions (at least figures 1 and 6), comprising:

calculating at least one set of coefficients for each of the  $n$  dimensions (in figure 6,  $h_0, h_1, h_2, h_3, h_{n-1}$  are calculated coefficients; column 6, lines 4-8), wherein each of the at least one set of coefficients configure circuit components to process the image data independently in each of the  $n$  dimensions ( $X(n)$  in figure 6 provides  $n$  dimensions; column 5, lines 59-66); and

processing the image data, wherein processing includes processing all of the image data once in one pass through the circuit during which the circuit has one configuration, and wherein at least one of the circuit components is a filter that is configurable to perform at least one operation during one pass, the at least one operation selected from a group comprising, decimation by an integer factor, low-pass filtering, and generating signal gradients (column 5 line 59 to column 6 line 66; column 7, lines 15-27).

**For claims 11 and 33,** Leung discloses the method wherein processing the image data comprises at least one pass (column 6, lines 15-16; entire operation provides one pass), wherein at least one filter (column 6, lines 4-29) processes image data in one of the  $n$  dimensions (column 5, lines 59-66;  $X(n)$  in figure 6 provides  $n$  dimensions), and wherein each of the at least one filters is independently configured for each pass

**For claims 12 and 34,** Leung discloses the method further comprising storing output from the at least one filter in a switch such that an output of the switch is selectable based upon an operation performed by the at least one filter (in figure 6,

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output is stored in register 70; select mode 80 provides a switch or multiplexer; column 6, lines 16-20).

**For claim 13**, Leung discloses the method further comprising: receiving the image data from a memory (column 5, lines 59-66); formatting the image data into samples (column 5, lines 59-66; sampling rate  $f_s$  formats the input data  $X(n)$  in figure 6); Transmitting a set of samples to the filter in regular intervals (column 5 line 66 to column 6 line 20); and writing processed image data to the memory (processed image data from adder 68 are stored in register memory 70) so as to overwrite the image data (column 6, line 4-29).

**For claim 18**, Leung discloses an apparatus for resizing (figures 1, 6) an image that includes image data in multiple dimensions ( $X(n)$  provides multiple dimensions), the apparatus comprising:

a memory interface coupled to a memory that stores the image data (column 5, lines 59-66; buffer 60 provides memory); and

at least one filter (column 6, line 20 provides a FIR filter), wherein each of the at least one filters processes data in one of the multiple dimensions, the at least one filter being configurable to perform at least one of a group of operations during one pass of the image data, the group of operations comprising, decimation by two, low-pass filtering, and generating signal gradients for resampling, wherein the image data is processed in at least one pass and stored as processed image data in the memory (column 5 line 59 to column 6 line 66; column 7, lines 15-27).

**For column 23,** Leung discloses the apparatus further comprising an input buffer (60) coupled to the memory interface, wherein the output buffer (70) receives image data from the memory and formats the image data into samples for the at least one filter (column 6, line 20).

**For claim 24,** Leung discloses the apparatus further comprising an output buffer (70) coupled to the memory interface, wherein the output buffer receives processed image data and formats the processed image data to be stored in the memory.

**For claim 25,** Leung discloses the apparatus wherein the at least one filter is a fifteen tap finite impulse response (FIR) filter, and wherein each tap receives a sample of the image data (column 6, lines 48-66; it is obvious to a person of ordinary skill in the art to create a 15 tap filter from a multiple tap filter of Leung).

**For claim 35,** see the rejection of claims 10 and 18 above.

***Allowable Subject Matter***

**4. Claims 14-17, 19-22 and 36-39** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Claims 1-9 and 26-31** are allowed.

**For independent claim 1,** prior art on record fails to teach or suggest, alone or in combination, for resizing an electronic image, comprising among other things receiving an output of the at least one first operation in a second filter; using a second set of predetermined filter coefficients to configure the second filter to perform at least one second operation on y-axis data of the sample; performing the at least one first

operation and the at least one second operation on each sample of the electronic image data to produce a set of processed samples; writing the set of processed samples to the memory; reconfiguring the first and the second filter; reading the set of processed samples from the memory; performing the at least one first operation and the at least one second operation on each of the set of processed samples to produce a next set of processed samples; repeating reading the set of processed samples, reconfiguring, and performing a predetermined number of times to produce a resized version of the electronic image.

**For independent claim 26**, prior art on record fails to teach or suggest, alone or in combination, a system for resizing an image that includes image data in multiple dimensions, the system comprising among other things, a resizing engine that performs different operations on the image data on different passes of the image data through the resizing engine, wherein the resizing engine is coupled to the memory interface to read formatted data from the main memory and to output processed image data back to the main memory, the resizing engine comprising a filter for each of the multiple dimensions, wherein the filter processes data in one of the multiple dimensions, the filter being configurable to perform at least one of a group of operations during one pass, the group of operations comprising, decimation by an integer factor, low-pass filtering, and generating signal gradients; and a controlling processor coupled to the resizing engine that executes instructions to control the resizing engine, including instructions for calculating coefficients for configuring the resizing engine to perform different operations on the image data, and instructions for configuring the resizing engine for each pass.

**5. Other prior art cited**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Leung (US 5,696,708) discloses a digital filter with decimated frequency response.

Zhu et al. (US 6,424,749 B1) disclose a system and method for scaling combined video and computer generated imagery.

Selby et al. (US 6,597,411 b1) disclose a method and apparatus for avoiding moiré in digitally resized images.

Slavin (US 6,751,362 B2) discloses a pixel resampling system and method for text.



**Contact Information**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kanji Patel whose telephone number is (703) 305-4011. The examiner can normally be reached on Monday to Thursday from 8:00 am to 6:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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